

We claim:

1. A method for preparing a bioactive glycoprotein by the steps of:

extracting the fruiting body of *Grifola frondosa* with ethanol at room temperature, and
removing the ethanol extract;

5 extracting the resulting residue with hot water at 100°-120° C, and adding ethanol to the hot
water extract to a final ethanol concentration of 50-75% by volume;

removing the resulting precipitate and floating matter after standing at 4°-10° C for 8-12
hours, wherein said floating matter is on the liquid or in the liquid or adhering matter to vessel
wall; and,

10 collecting a fraction of molecular weight equal to or greater than 14,000 from the resulting
supernatant.

2. The method for preparing a bioactive fraction as recited in Claim 1 wherein said collection of
a fraction with a molecular weight equal to or greater than 14,000 is performed by dialysis.

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3. The method for preparing a bioactive fraction as recited in Claim 1 wherein said collection of
a fraction with a molecular weight equal to or greater than 14,000 is performed by ultrafiltration.

20 4. The method for preparing a bioactive fraction as recited in Claim 1 wherein said collection of
a fraction with a molecular weight equal to or greater than 14,000 is performed by centrifugal
filtration.

5. The method for preparing a bioactive glycoprotein as recited in Claim 1 further comprising purifying said above fraction to obtain the glycoprotein with average molecular weight of 20,000.
6. The method for preparing a bioactive glycoprotein as recited in Claim 5 wherein said 5 purification is performed using gel filtration chromatography.
7. The method for preparing a bioactive glycoprotein as recited in Claim 5 wherein said purification is performed using electrophoresis.
- 10 8. The method for preparing a bioactive fraction containing a glycoprotein as a main component as recited in Claim 1 wherein said hot water extraction is performed at 1.2 atmospheres pressure.
9. The method for preparing a bioactive fraction containing a glycoprotein as a main component as recited in Claim 1 wherein said removal of resulting precipitate and floating matter is 15 performed at about 4° C.
10. The method for preparing a bioactive fraction containing a glycoprotein as a main component as recited in Claim 1 wherein said removing of resulting precipitate and floating matter is performed by centrifugation.
- 20 11. The method for preparing a bioactive fraction containing a glycoprotein as a main component as recited in Claim 1 wherein said removing of resulting precipitate and floating matter is performed by skimming.

12. The method for preparing a bioactive fraction containing a glycoprotein as a main component as recited in Claim 1 wherein said removing of resulting precipitate and floating matter is performed by pipetting.

5 13. A bioactive fraction comprising a glycoprotein said glycoprotein having a protein to saccharide ratio ranging from about 75:25 to about 90:10 and a molecular weight equal to or greater than 14,000.

10 14. A bioactive glycoprotein wherein said bioactive glycoprotein possesses a protein to saccharide ratio ranging from about 75:25 to about 90:10 and an average molecular weight of about 20,000.

15 15. An antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product comprising the bioactive fraction of Claim 13.

16. An antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product comprising the bioactive glycoprotein of Claim 14.

17. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in
20 Claim 15 further comprising vitamins.

18. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in
Claim 15 further comprising minerals.

19. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in Claim 15 further comprising vitamins and minerals.

20. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in 5 Claim 15 further comprising herbs, mushrooms, and other nutritional ingredients.

21. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in Claim 15 wherein said product may be in the form of a tablet.

10 22. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in Claim 15 wherein said product may be in the form of a capsule.

23. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in Claim 15 wherein said product may be in the form of a granule.

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24. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in Claim 15 wherein said product may be in the form of a liquid, including tincture and drink.

25. A health food or functional food product which may claim antidiabetic, antihypertensive, 20 antiobesity and antihyperlipidemic activities wherein said bioactive glycoprotein of Claim 14 is used as a food additive.

26. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in
Claim 16 further comprising vitamins.

27. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in
5 Claim 16 further comprising minerals.

28. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in
Claim 16 further comprising vitamins and minerals.

10 29. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in
Claim 16 further comprising herbs, mushrooms, and other nutritional ingredients.

30. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in
Claim 16 wherein said product may be in the form of a tablet.

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31. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in
Claim 16 wherein said product may be in the form of a capsule.

32. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in
20 Claim 16 wherein said product may be in the form of a granule.

33. The antidiabetic, antihypertensive, antiobesity and antihyperlipidemic product recited in
Claim 16 wherein said product may be in the form of a liquid, including tincture and drink.

34. A health food having one or more of the properties from the group consisting of antidiabetic, antihypertensive, antiobesity and antihyperlipidemic activities wherein said health food comprises the bioactive fraction of Claim 15 is used as a food additive.

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35. A functional food product having one or more of the properties from the group consisting of antidiabetic, antihypertensive, antiobesity and antihyperlipidemic activities wherein said functional food product comprises the bioactive fraction of Claim 15 is used as a food additive.

10 36. A health food having one or more of the properties from the group consisting of antidiabetic, antihypertensive, antiobesity and antihyperlipidemic activities wherein said health food comprises the bioactive glycoprotein of Claim 16.

15 37. A functional food product having one or more of the properties from the group consisting of antidiabetic, antihypertensive, antiobesity and antihyperlipidemic activities wherein said functional food product comprises the bioactive glycoprotein of Claim 16.